

EXECUTIVE SUMMARY

This Environmental Impact Statement (EIS) meets requirements under the Federal Environmental Assessment and Review Process in determining how to best meet the needs of the people and the environment. This EIS includes an evaluation of resources and considerations involved in responding to the chronic erosion on the northern portion of Figure Eight Island so as to preserve the integrity of its infrastructure, provide protection to existing development, and ensure the continued use of the oceanfront beach along the northernmost three miles of its oceanfront shoreline. Significant resources which occur in the study area include socioeconomic resources, marine resources, terrestrial resources, threatened and endangered species, recreation and aesthetic resources, and cultural resources.

Chronic erosion problems along the northern sections of Figure Eight Island's ocean shoreline have been persistent since the early 1990's when the orientation and position of the main ebb channel through Rich Inlet moved northward. The northward movement of the main ebb channel was accompanied by the northward shift of the south side of the ebb tide delta away from the north end of Figure Eight Island, thus removing the protection it provided to the northern portion of the island. In addition to erosion issues along the ocean shoreline south of Rich Inlet, erosion is also prevalent along portions of the Nixon Channel shoreline extending from Rich Inlet southwest to the entrance to Nixon Creek. This erosion along the estuarine shoreline is associated with the proximity of the main flow channel to the shoreline.

As a result of this chronic erosion, Figure Eight Island is threatened with economic losses resulting from damages to structures and their contents due to hurricane and storm activity and the loss of beachfront land due to progressive shoreline erosion. The total assessed tax value of property within the limits of Figure Eight Island is approximately \$1,189,810,926 based on the 2007 reappraisal. Also, periods of severe shoreline recession have adversely affected a number of biological resources including nesting habitat for endangered and threatened sea turtles.

To alleviate these problems attributed to erosion, several potential solutions were evaluated within this EIS. These include abandoning the existing infrastructure and retreating from the oceanfront shoreline; continued management of the ocean shoreline with present and past activities such as beach scraping, periodic nourishment, and placement of sandbags; relocating the inlet to a more optimal orientation accompanied with beach nourishment along the eroding shorelines; beach nourishment alone; and the construction of a terminal groin accompanied with beach nourishment. After consideration of the costs, benefits and environmental consequences of the proposed and alternative actions, the initial evaluation of project alternatives indicated that the optimal solution would entail the relocation of the inlet to the south which would allow the northern shoreline to regain protection from the ebb tide shoal. At that time, hardened structures including terminal groins were illegal in the State of North Carolina. However,

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during the 2011 legislation session, the North Carolina Legislature passed Session Law 2011-387, Senate Bill 110 which allows consideration of terminal groins adjacent to tidal inlets. The legislation limited the number of terminal groins to four (4) statewide and included a number of provisions and conditions that must be met in order for the groins to be approved and permitted. With this law in place, the terminal groin alternatives were revisited as a feasible solution to the erosion problem.

Following further extensive alternatives analysis, the applicant determined that the most effective solution would entail the construction of a terminal groin 213 m (700 ft) in length with a 273m (900 ft) shore anchorage section to protect against possible flanking of the landward end of the structure. In this regard, flanking is defined as erosion around the landward end of a structure which ultimately exposes the normally “dry” side of the structure to the water. This structure is intended to control tidal current induced shoreline changes immediately south of Rich Inlet. In addition to the construction of the terminal groin, several areas of the shoreline would be nourished with material excavated from the previously permitted area within Nixon Channel and three dredge disposal islands located along the AIWW behind Figure Eight Island. Beach fill will be placed along 548.6 m (1,800 ft) of the Nixon Channel shoreline just south of Rich Inlet. In addition, material will be used to nourish 3,810 m (12,500 ft) of ocean shoreline extending from Rich Inlet south to Bridge Road (see Figure 1.1). The existing navigation feature in Nixon Channel would be maintained to its permitted depth of -2.7 m (-9 ft) MLW (or -3.5 m (-11.4 ft) NAVD) and widths. Periodic nourishment of the beach fill would be accomplished approximately every four years in conjunction with maintenance dredging of the existing navigation feature in Nixon Channel.

This EIS contains the following information:

- **Chapter 1, Introduction** – Explains the purpose of the development of an EIS, describes agency and public coordination efforts, issues and concerns elicited by the development of the EIS and discusses applicable laws, rules and regulations.
- **Chapter 2, Purpose and Needs** – Identifies purpose and needs of the project and discusses how the shoreline along Figure Eight Island has been managed in the past.
- **Chapter 3, Alternatives Development** – Describes project rationale and alternatives considered.
- **Chapter 4, Affected Environment** – Identifies existing resources which occur in the study area.
- **Chapter 5, Environmental Consequences** – Evaluates the project alternatives and discusses the anticipated changes to the existing environment including direct, indirect, and cumulative effects.
- **Chapter 6, Avoidance and Minimization** – Describes several actions and measures incorporated to avoid or minimize adverse effects to resources.

Major Conclusions

Chronic erosion has been a major threat to many of the resources along the northern portion of Figure Eight Island. Action is needed to alleviate this threat. The Figure Eight

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Beach Homeowners Association (F8 HOA) is seeking Federal and State permits to allow development of a management plan for Rich Inlet, which includes the construction of a terminal groin with supplemental dredging, that would mitigate chronic erosion on the northern portion of Figure Eight Island so as to preserve the integrity of its infrastructure, provide protection to existing development, and ensure the continued use of the oceanfront beach along the northernmost three miles of its oceanfront shoreline.

Issues to be Resolved

The Applicant's Preferred Alternative involves the construction of the first terminal groin since becoming legal in the State of North Carolina since the passage of Senate Bill 110 in July 2011. Hardened structures, including terminal groins, had been illegal within the state since 1985. A full understanding of how certain conditions related to the implementation of SB 110 continues to be evaluated. It is expected that State and Federal agencies along with the public will provide comments to this draft which will result in a comprehensive Avoidance and Minimization chapter including proposed monitoring initiatives. On-going coordination with the North Carolina Division of Coastal Management will continue and the details of the implementation stages are expected by the release of the Final Environmental Impact Statement.